



# FLORENCE COPPER PROJECT

## *A Discussion with the Town of Florence*

August 2, 2010

**HDI**CURIS



# The Florence Copper Project is not a “Mine”

- There is no open pit
- There are no tailings dams
- There are no waste rock storage areas
- There are no smelters or significant air emissions
- There is no blasting or use of explosives
- Post operations the land will be used to support agriculture, residential and/or community amenities

# 1. The Economic Opportunity Associated with the Florence Copper Project

# Local Investment and Project Scope

- Curis plans to invest ~\$250 million in the Florence Copper Project over the next three years
- Near-term expenditures include:
  - engineering and environmental studies
  - permitting activities
  - a small on-site ISCR production test
  - community outreach activities
  - site operations and administration
  - Extensive contractor services
- Life of project (15-20 years) capital expenditures will be in the range of a further \$300 million



# Taxes to be Paid by the Florence Copper Project

## 1. Estimated Property Taxes and Power Levy

<b>Town of Florence</b>	<b>%</b>	<b>Copper Price @ \$2.50 over life of Project</b>	<b>Copper Price @ \$3.00 over life of Project</b>
Town of Florence	5.0%	\$ 1,589,291	\$ 2,010,132
Florence	20.1%	6,450,817	8,158,978
Florence ("B" Bonds)	8.5%	2,733,733	3,457,619
Florence (Override)	9.3%	2,990,677	3,782,601
Town of Florence/Anthem	22.1%	7,103,984	8,985,101
<b>Total to Town</b>	<b>65.0%</b>	<b>\$ 20,868,502</b>	<b>26,394,429</b>
<b>Pinal County</b>			
Pinal Reserve Fund	0.8%	\$ 251,941	\$ 318,655
Pinal County	20.1%	6,466,826	8,179,226
School Equalization	2.1%	661,571	836,753
Pinal	8.6%	2,761,549	3,492,800
Pinal (Bonds)	0.5%	167,294	211,593
Fire Dist Assistance Tax	0.3%	87,849	111,112
Water Conservation	0.6%	200,112	253,101
Pinal	0.6%	194,109	245,508
Pinal	1.1%	340,191	430,272
Central AZ Institute of Technology	0.3%	100,056	126,551
<b>Total to County</b>	<b>35.0%</b>	<b>\$ 11,231,498</b>	<b>\$ 14,205,571</b>
<b>Power levy to Town of Florence (\$141 million total purchase)</b>	<b>3.0%</b>	<b>\$ 4,230,000</b>	<b>\$ 4,230,000</b>
<b>Property Tax and Power Levy to Town &amp; County</b>		<b>\$ 36,330,000</b>	<b>\$ 44,830,000</b>



# Taxes to be Paid by the Florence Copper Project

## 2. State Taxes

	Copper price at US \$2.50 per lb over Life of Project	Copper price at US \$3.00 per lb over Life of Project
Estimated royalties	\$ 143,300,000	\$ 172,000,000
Estimated corporate income taxes	\$ 92,000,000	\$ 127,400,000
Estimated severance taxes	\$ 37,800,000	\$ 46,600,000
<b>Total Estimated State taxes and Royalties</b>	<b>\$ 273,100,000</b>	<b>\$ 346,000,000</b>

Note that in addition to above FCP will have:

- total payroll of \$255 million and associated State payroll taxes of \$33 million.
- Purchases of approximately \$233 million in goods and services much of which will be subjected to State sales tax of addition 6.6%.

# Economic Diversification and Employment

- In full production, the Florence Copper Project will create ~170 full-time positions for professional, technical, general labor and administrative staff
- For each direct job created, the Florence Copper Project can support another 4.75\* indirect or induced jobs.
- Total employment impact in the region would be 900 + jobs
- Direct annual payroll from FCP = \$13.2 million. Including indirect regional payroll = \$50 + million annually.
- Approximate operating expenditures by FCP in Town of Florence and the region = \$31.4 million annually.
- Curis will be direct as much of this spending to local and county businesses as possible as detailed in our Local Hire and Procurement Policies.
- Curis will also work with Town economic development staff to support existing and attract new diverse businesses to Florence as part of the FCP.
- These jobs and spending will create significant economic benefits for businesses within the Town of Florence and Pinal County

\* Source: The Economic Impact of the Arizona Copper Industry, 2009 (WEAC)

# Broader Community Investment

It is Curis's intent to work with the Town of Florence on a broad and comprehensive community investment strategy. Elements could include:

- Infrastructure development/renewal including:
  - i.) improvements to Hunt Highway
  - ii.) second crossing of the Gila River connecting north Florence to downtown
  - iii.) investments in community amenities (parks)
  - iv.) commercial development along Hunt Highway
  - v.) support to Town's waste water treatment plant plans
  - vi.) support for plans to revitalize Main Street
- Collaborate with Town on complimentary partnership opportunities for economic development – e.g. solar energy development on FCP site
- Collaboration with regional educational institutions for Florence based school investment and training opportunities
- Creation of a Community Investment Fund supported by Curis and administered by an arm's length board
- Youth scholarship fund
- Post-operations land use planning (e.g. Escalante Ruins)



## 2. Stages of the Florence Copper Project

- Production Test
- Feasibility Study and Permitting
- Project Financing and Construction
- Operations

# Phase 1 – Production Test

- Intent is to initiate a small 18 month Production Test to confirm feasibility of the ultimate project
- Test would include the installation of approximately 20 water and monitoring wells spaced approximately 70 feet apart. Total land occupied during this phase is approximately 2 acres
- Objectives of the test are to:
  - Optimize and confirm copper recoveries observed and documented by BHP
  - Optimize our pumping and well design specifications

## Phase 2 – Feasibility Study and Permitting

- Following a successful Production Test program, intent is to complete a “bankable” level Feasibility Study
- Parallel with the Feasibility Study will be a 12 to 18 month local, State and Federal permitting process
- During this phase all engineering, water use, design and production related issues will be addressed in full detail
- Community outreach activities will continue throughout this process

## Phase 3 – Project Financing and Construction

- Phase 3 will take approximately 12 to 18 months to complete
- Primary activities will focus on infrastructure development, building a solvent extraction/electro-winning (SX/EW) plant, construction of surface impoundments, construction of visibility berms, and well field development

## Phase 4 - Operations

- Operations expected to continue for 15 to a maximum of 20 years
- Site would be progressively reclaimed
- Pure copper cathode produced on site using standard well proven SX/EW technology that has been in use for more than 40 years. Note that some 19 SX/EW plants are currently in operation in Arizona
- Intent of company to utilize, wherever possible, renewable energy sources for power needs





# In-Situ Recovery Examples





## Phase 5 – Reclamation & Closure

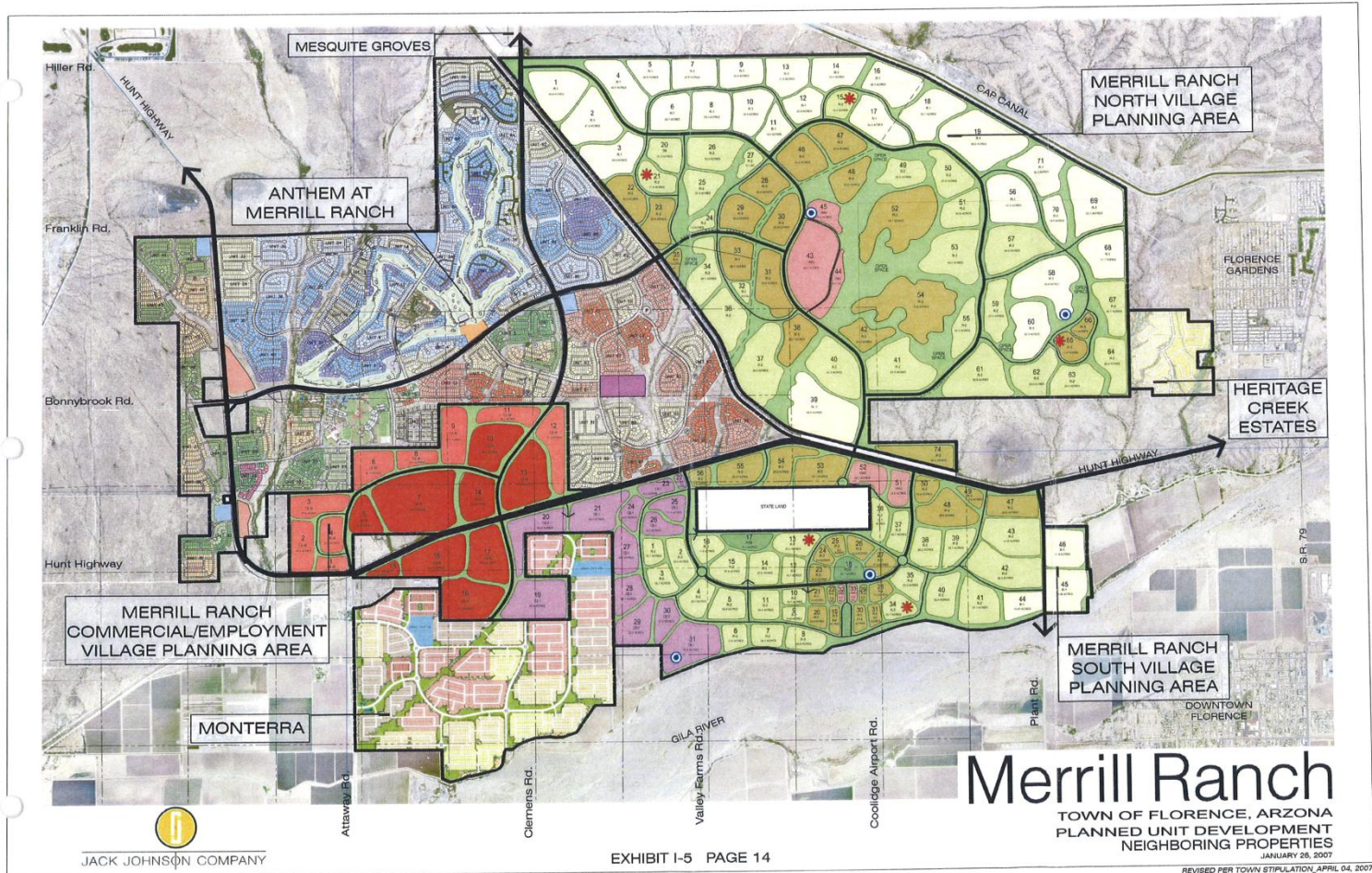
- Reclamation and closure activities will be progressive, such that some portions of the ISCR production area will be reclaimed while others are still in production
- Following ISCR operations, the Florence Copper Project site will be returned to pre-development or better conditions
- All injection and recovery wells will be removed, cemented and closed-off below ground
- Buildings, facilities, and infrastructure will be removed
- The property will be available for a number of post-closure land uses, including agriculture and residential development
- The State of Arizona and the Environmental Protection Agency will ensure that sufficient bonding or other financial sureties from the company are in place to responsibly close and reclaim the Florence Copper Project at any stage of its operating life

# Phase 5. Site Closure

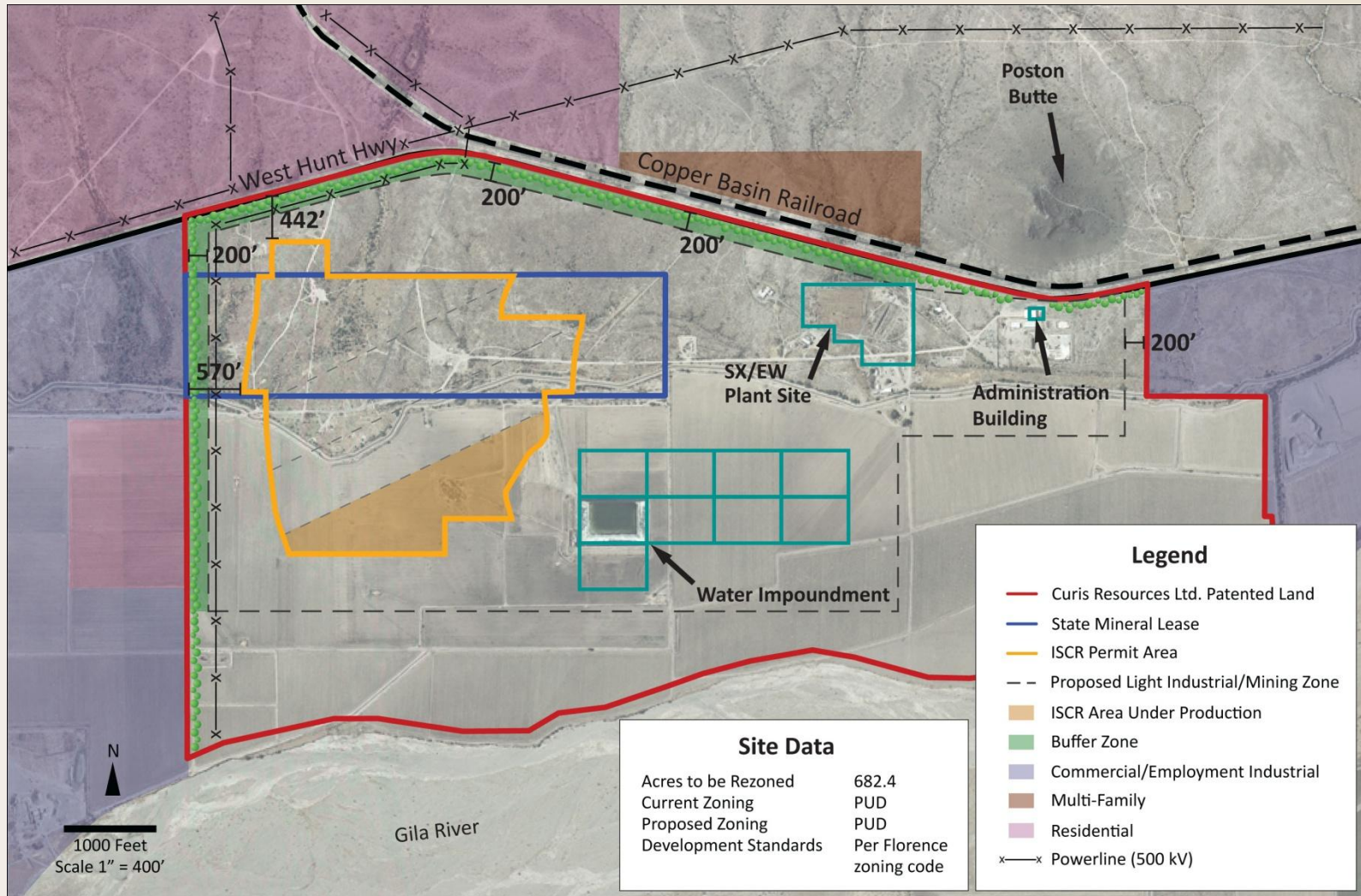


## 3. Land Use









## 3. Permitting and Groundwater Protection Activities



# Project Permitting

GOVERNMENT AGENCY	PERMIT/AUTHORIZATION
United States Environmental Protection Agency (EPA)	Underground Injection Control (UIC) Permit & Aquifer Exemption
	Programmatic Agreement with the Arizona State Historic Preservation Office & the Advisory Council on Historical Preservation
Arizona Department of Environmental Quality (ADEQ)	Aquifer Protection Permit (APP)
	Arizona Pollutant Discharge Elimination System - General Permit for Stormwater Discharges
	Hazardous Waste Generator Identification Number
	Septic Tank
	401 Certification
Arizona Department of State Land	Mineral Lease
	Mining Plan of Operations
Arizona Department of Water Resources (ADWR)	Permit to Withdraw Groundwater for Mineral Extraction & Metallurgical Processing
	Water Rights
Arizona State Emergency Response Commission	Planning Notification
Arizona State Historic Preservation Office	Burial Agreement (Case No. 94-24, Arizona Revised Statutes 41-865) Arizona State Historic Preservation Office
Arizona State Mine Inspector	Mined Land Reclamation Plan
Federal Communications Commission	Radio License
Town of Florence	General Plan, Rezoning, Site Planning & Building Permits
Gila Water Commissioner	Change of Use Permit (Globe Equity 59 Decree)
Pinal County Air Quality Control District	Air Quality Permit
Pinal County Emergency Response Planning Committee	Planning Notification

# Status of Aquifer Protection Permit (APP) and Underground Injection Control (UIC) Permit

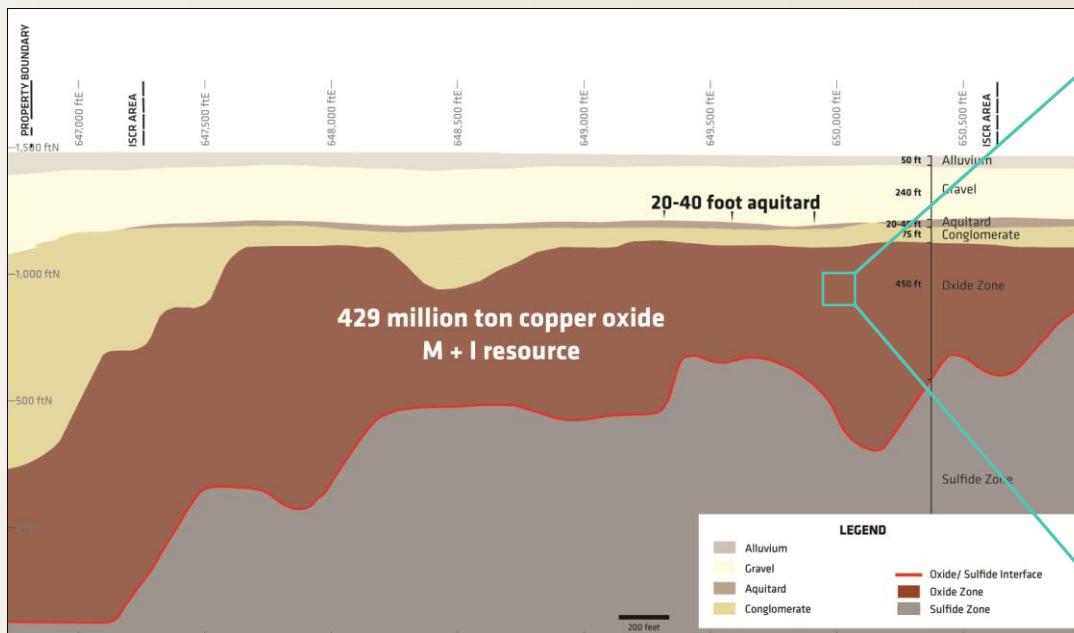
- Submitted “Other” Amendment Application to ADEQ for APP and Minor Modification Application to USEPA for UIC Permit
  - Transfers APP and UIC Permit to Curis Resources (Arizona), Inc.
  - Removes facility from temporary suspended status
  - Authorizes a production test in accordance with existing permit conditions
  - Requires “Significant” Amendment of APP and Modification of UIC Permit before commencement of commercial operations
  - Requires continuation of all compliance testing, monitoring, and reporting
  - Requires updated closure and post-closure bonding

# APP Significant Amendment and UIC Modification for Commercial Operations

- Required information includes:
  - Updated Demonstration of Best Available Control Technology
  - Updated hydrogeologic data
  - Updated groundwater flow model and fate transport model
  - Revised facility description and drawings
  - Statistical analysis of monitoring results and proposed revisions to Alert Levels (ALs) and Aquifer Quality Limits (AQLs)
  - Updated closure and post-closure plans with financial assurance
- Typically requires 18 months to complete permitting process
- Permitting process includes public participation activities including notices, opportunity to comment, and public hearings (if requested)

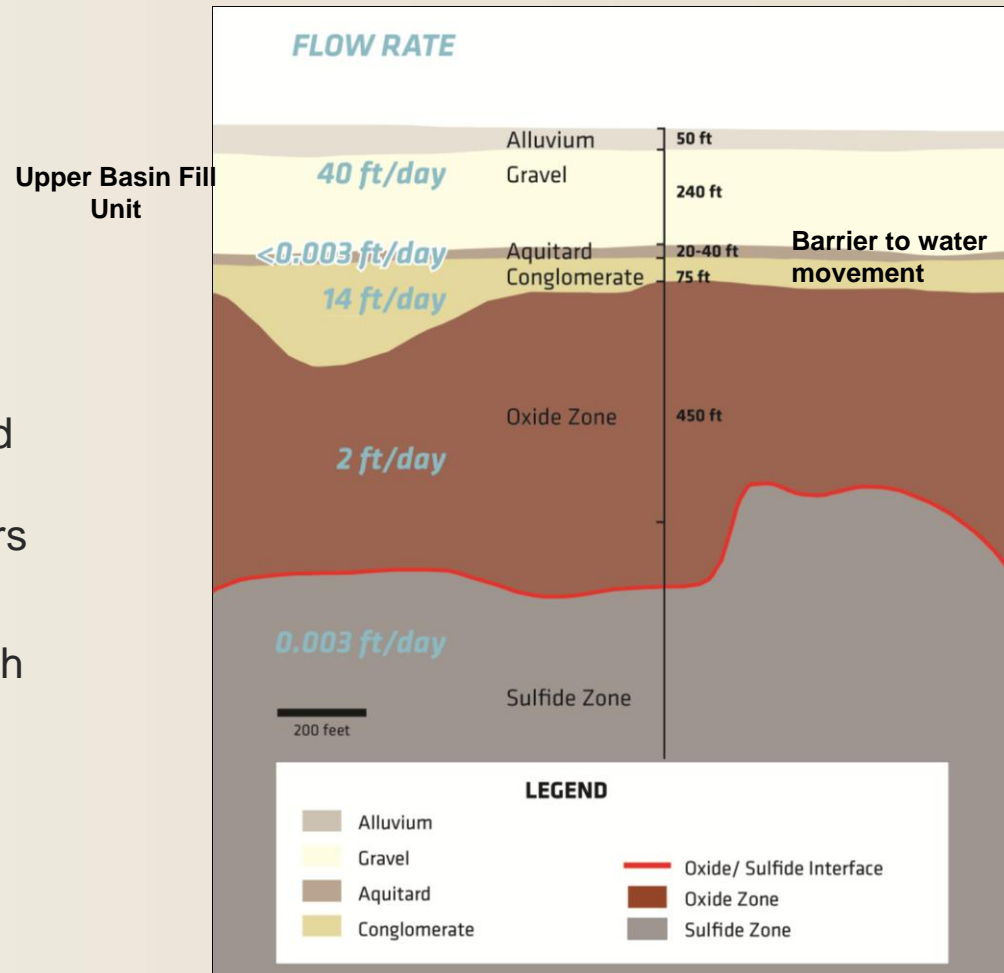
# Geology

- 429 million tons measured and indicated copper oxide resource
- 0.33 percent of deposit is copper – **removal does not change volume of material in ground**
- Micro fractured rock
- Aquitard acts as a natural barrier to water movement
- Ideal condition for in-situ copper recovery (ISCR)



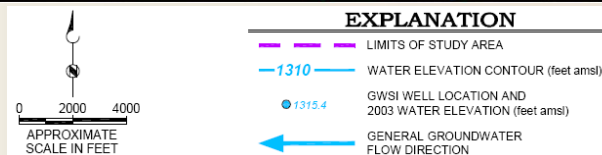
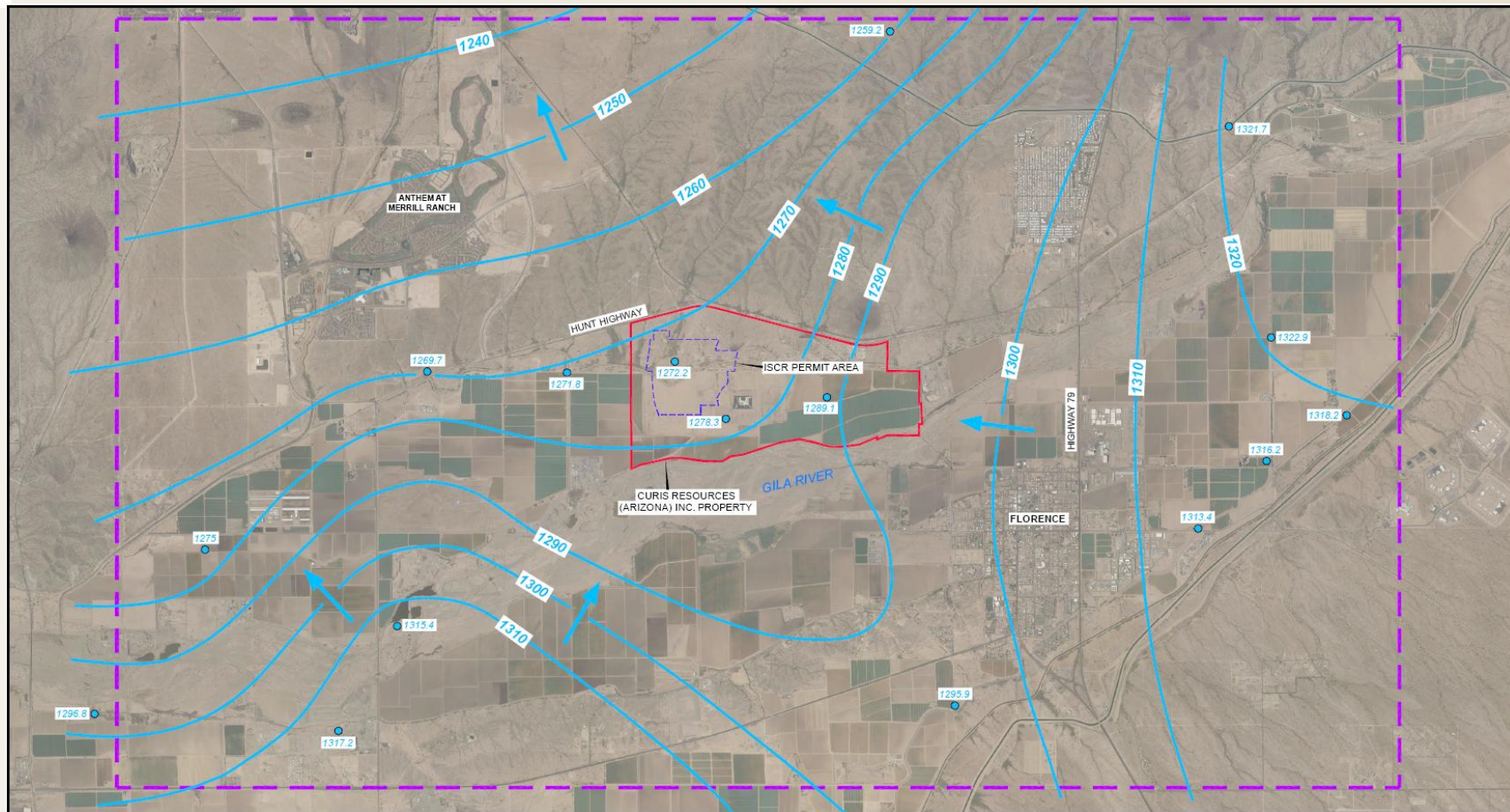
# Site Groundwater Flow Characteristics

- Extensive groundwater hydrology studies have been conducted at the Florence Copper Project
- Upper and Lower Basin Fill aquifers exhibit high rates of water flow and recharge
- Local wells used for drinking water and irrigation extract water almost exclusively from these basin fill aquifers
- ISCR operations will exclusively pump water from the bedrock aquifer beneath the basin fill aquifers
- **Neither the quality or availability of water within basin fill aquifers will be affected by the Florence Copper Project**



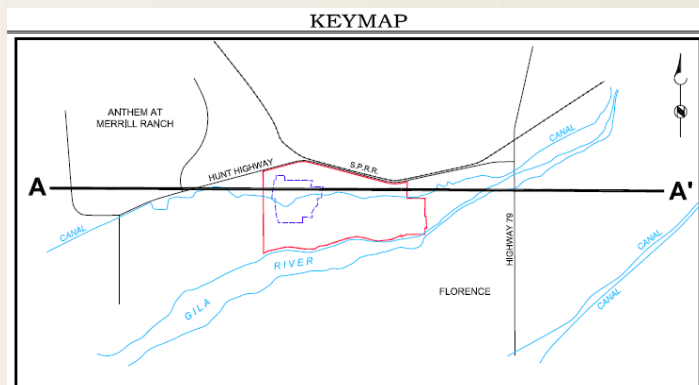
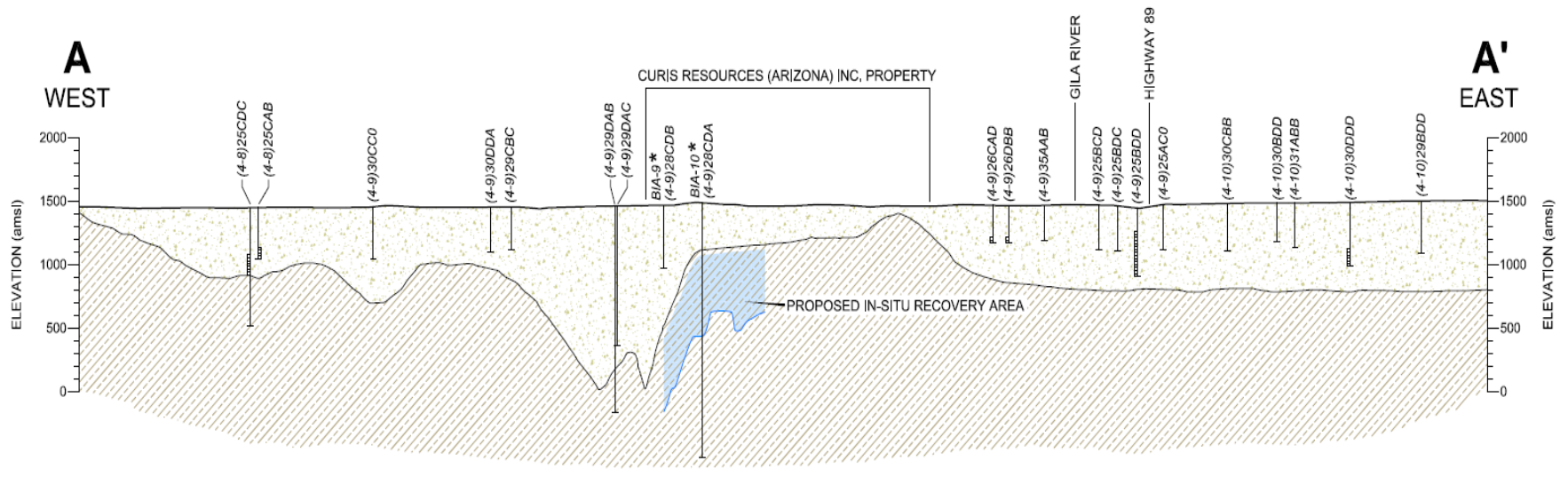


# Groundwater Elevations in Basin Fill Aquifers (December 2003)





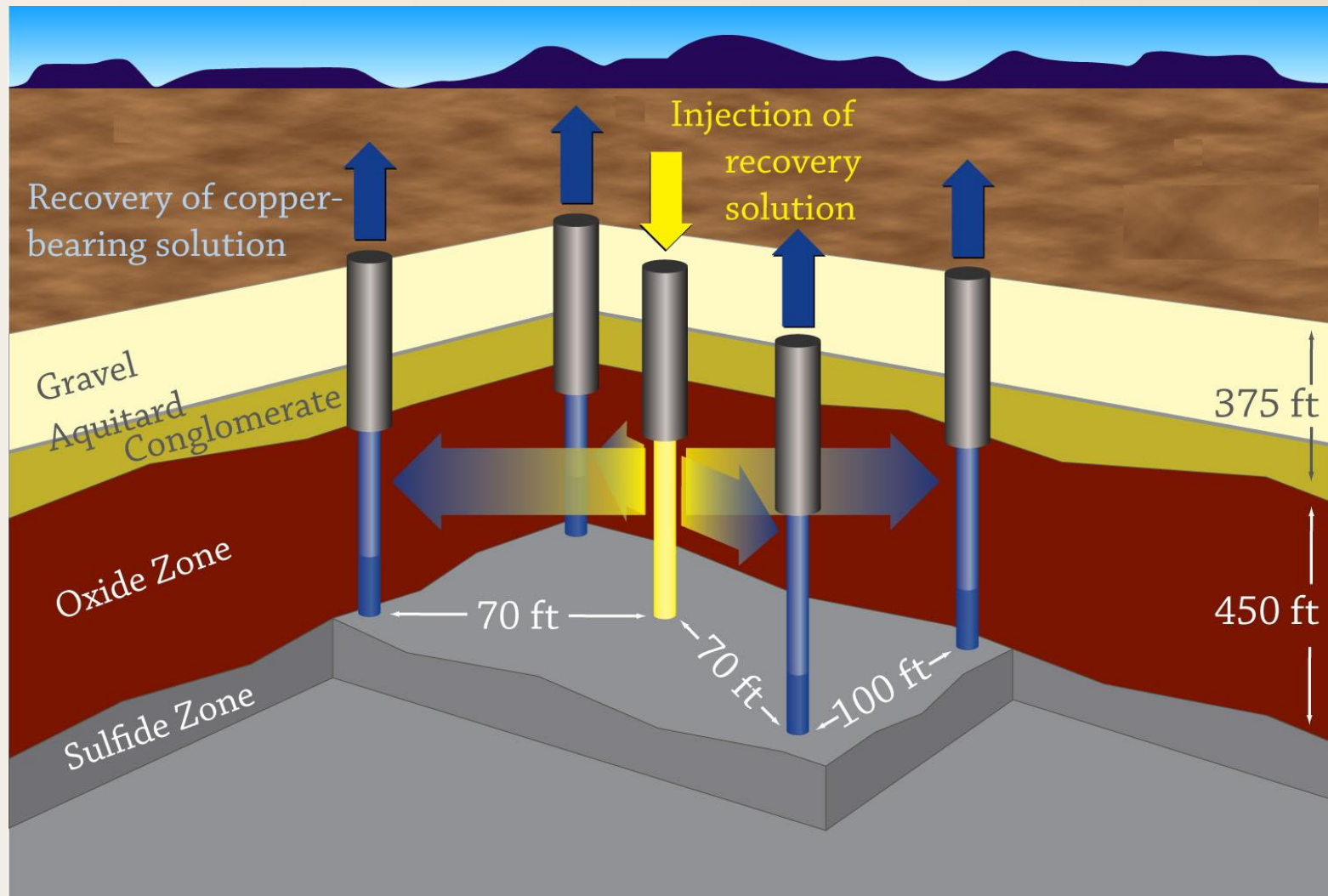
# Generalized Regional Geologic Cross-Section Showing Groundwater Production Wells



Note\* - Deep BIA well on Curis property to be re-located.

EXPLANATION	
	BASIN FILL ALLUVIAL UNITS
	BEDROCK

# In-Situ Copper Recovery (ISCR)



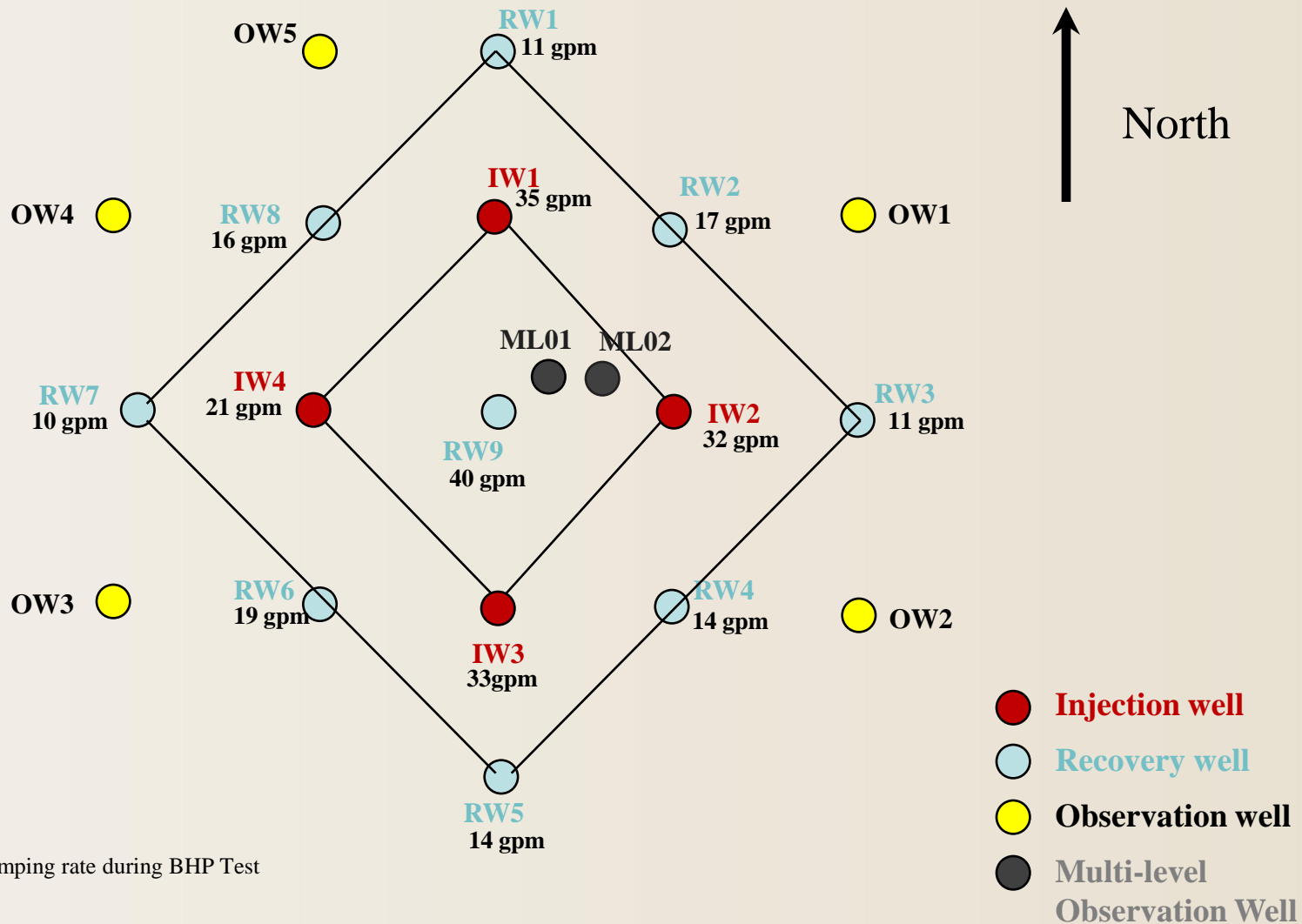
# In-Situ Copper Recovery (ISCR)

- ISCR allows for the recovery of valuable copper minerals without mining related disturbances (e.g., no area-wide dewatering, no open pits, no underground openings, and no waste rock facilities)
- A low pH solution is injected into an orebody with soluble copper
  - Solution strength is comparable to lemon juice or household vinegar
  - Wells are cased and sealed through basin fill aquifers
- Copper-rich solution is pumped to surface via recovery wells
- Well orientation and pumping rates designed to ensure 'hydraulic control'
  - Solution recovery rates are 10% to 20% higher than injection rates
- Excess water placed in surface impoundments
- Large number of monitoring wells at different depths ensure groundwater quality is maintained

# Hydraulic Control

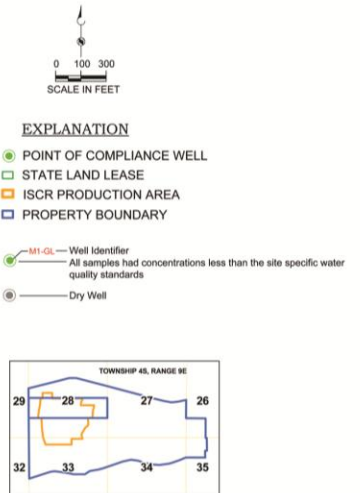
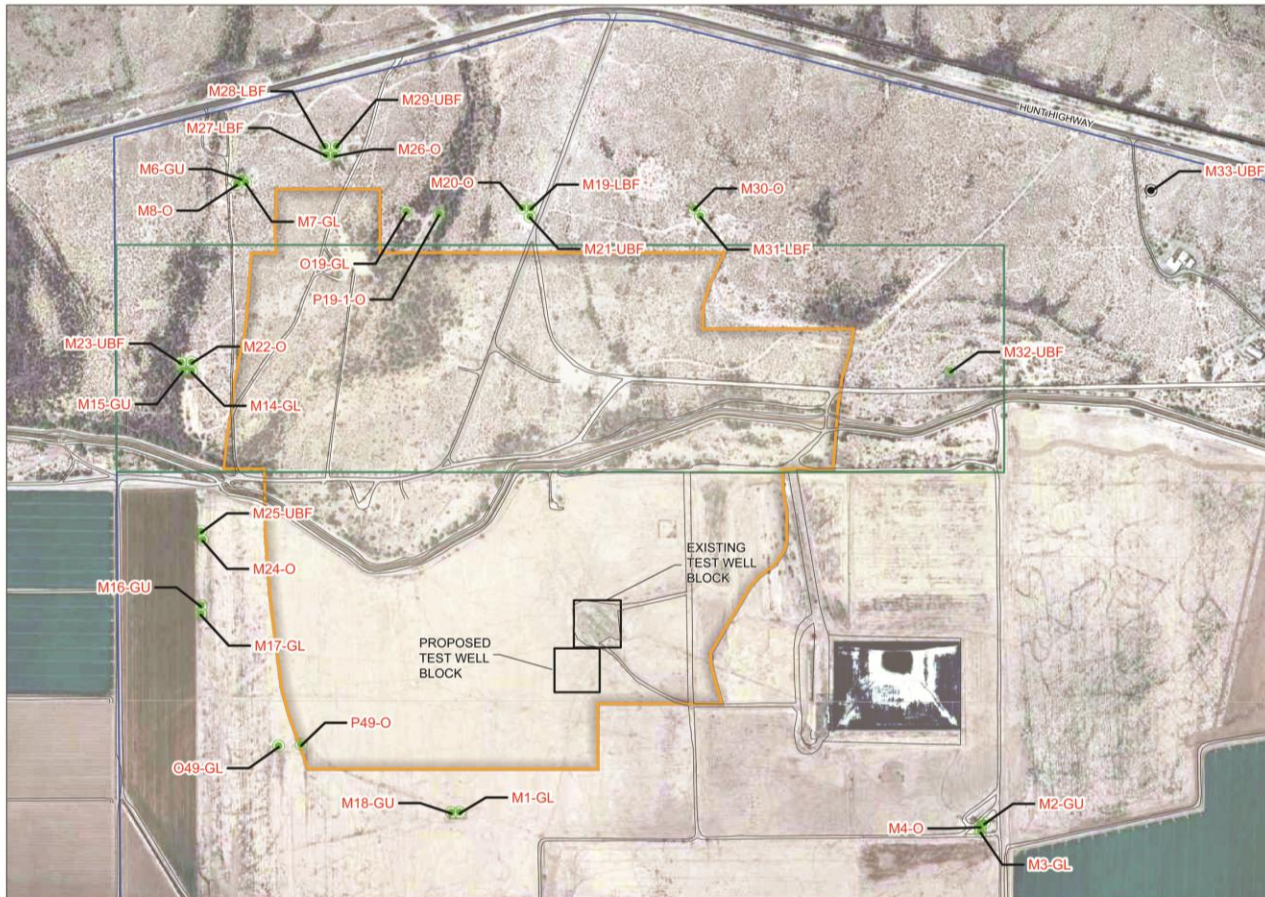
- Hydraulic control defined by flow:
  - Remove 10 to 20% more solution than injected into production block
  - Monitored by comparing daily amount of flow injected into production block with daily amount of flow recovered from production block
  - Contingency plan is triggered if daily amount injected exceeds daily amount recovered
- Hydraulic control defined by inward groundwater gradient:
  - Groundwater gradient monitored at four equally spaced well pairs using transducers
  - Transducers used to determine average daily groundwater elevation in each well
  - Contingency plan is triggered if average daily groundwater elevation in a recovery well equals or exceeds average daily groundwater elevation in the paired observation well

# Production Test Well Layout





# Groundwater Compliance Monitoring



Site Specific Water Quality Standards:  
Tables III.B and III.C, Part IV, Aquifer Protection Permit



# Agriculture & Water Use

- The ISCR production area at Florence comprises 213 acres
- ISCR operations will utilize about 1,300 acre feet of water per year in full production
- Agricultural production (2-3 harvests of alfalfa) on 213 acres would require between 1,700 - 2,600 acre feet of water per year
- Currently, 423 acres of the project site are used for agricultural production
- It is expected that agricultural cultivation will continue during ISCR operations

## The Florence Copper Project will result in no change to regional groundwater quality or availability

- After the BHP ISCR Production Test, water quality within the test area was restored to meet permit requirements
- 14 years of water quality monitoring at 31 'point of compliance' wells prior to, during and following the 1997 BHP ISCR production test have shown no impact to groundwater conditions
- During future ISCR operations, the monitoring program will be expanded and enhanced
- All site-specific water quality standards are enforced by ADEQ and USEPA
- Water quality monitoring will continue for 30 years after closure of ISCR operations to ensure water quality is maintained
- Water monitoring does not prevent the site from being used for agriculture or other appropriate uses.

## Traffic, Dust & Air Quality

- Some 170 employees and contractors are likely to travel by bus, car and vehicle pools to the Florence Copper Project site on a daily basis
- Shipment of equipment and supplies will require, on average, 12 truck trips per day
- Shipment of copper cathode will require, on average, three truck trips per day
- All truck and most car traffic to the Florence Copper Project site will use State highways and major arterial roads, and will not enter residential neighborhoods
- In future, Curis may explore a potential rail spur to connect to the Copper Basin Railway to the north as an alternative to trucking
- Rail alternatives will be considered in full consultation with the Town of Florence & residents
- Emissions from the SX/EW plant and dust are expected to be minimal and must satisfy strict Air Quality Permit standards enforced by Pinal County and the Environmental Protection Agency (EPA)

# Cultural Resources Management Program

- Curis Resources Ltd. acknowledges the important cultural resources present within the Florence Copper Project site
- Curis is engaging with stakeholders and government agencies to ensure that all cultural resources are treated appropriately. Parties include:
  - Ak Chin Indian Community
  - Gila River Indian Community
  - Salt River Pima Maricopa Indian Community
  - the Tohono O'odham Nation
  - Hopi Tribe
  - Environmental Protection Agency (EPA)
- Arizona State Historic Preservation Office (SHPO)



## Next Steps.....